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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/581,832

06/05/2006

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03/01/2010

EXAMINER

LEGASSE JR, FRANCIS M

ART UNIT

PAPER NUMBER

2878

MAIL DATE

DELIVERY MODE

03/01/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/581,832	<b>Applicant(s)</b> RICHARD, MATTHIEU	
	<b>Examiner</b> FRANCIS M. LEGASSE JR	<b>Art Unit</b> 2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 November 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-6 and 8-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-6 and 8-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1, 4, 8 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Maeda (US Patent No. 6,626,510 B2).**

**Regarding claim 1,** Maeda (*figures 9 and 10*) discloses an intrusion detector including a sensor arrangement for detecting a liquid on a surface, the sensor arrangement comprising:

- at least one transparent elevation (180) formed on the surface (700B), wherein the transparent elevation (180) is made of a first transparent material, wherein at least one first facet of the transparent elevation (180) defines a first angle with the surface (700B); and
- wherein the first angle is larger than an angle at which a total reflection occurs at an interface of the first transparent material and air and smaller than an angle at which a total reflection occurs at an interface of the first transparent material and the liquid (706) (see figure 9 and 10);
- a light source (1001) arranged for emitting an incident ray (A) into a first direction such that the incident ray (A) passes through the surface (700B) into the transparent elevation (180), such that in a presence of the liquid (709) at

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the first facet the incident ray is transmitted through the first facet, wherein in an absence of the liquid (709) the incident ray is reflected due to a total reflection at the first facet (col. 10, lines 49-67);

- a light detector (102) for detecting the reflected incident ray (B, C).

**Note:** Applicant is reminded that the approximate critical angle for air/surface interface is  $42^\circ$ . The approximate critical angle for liquid/surface interface is equal to or greater than  $60^\circ$ . Further, if these conditions are not met the above reference would not function properly. As measured with a protractor, the first angle is  $45^\circ$ , thus fulfilling the requirements of the claim language.

**Regarding claim 4**, Maeda (*figures 9 and 10*) discloses a sensor arrangement for detecting a liquid on a surface, the sensor arrangement characterized in that the elevation (180) is formed with a triangular cross-section.

**Regarding claim 8**, Maeda (*figures 9 and 10*) discloses a sensor arrangement for detecting a liquid on a surface, the sensor arrangement characterized in that an angle defined by two adjacent first facets (peak of triangle) of at least one elevation is different to  $90^\circ$ .

**Regarding claim 9**, Maeda (*figures 9 and 10*) discloses a sensor arrangement for detecting a liquid on a surface, the sensor arrangement characterized in that first direction (B') is substantially perpendicular to the surface (700B).

**Claims 1, 5, 6 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Altfather et al. (US Patent No. 5,997,121, "Altfather", hereinafter).**

**Regarding claim 1**, Altfather (*figures 2, 5A and 5B*) discloses an intrusion detector including a sensor arrangement for detecting a liquid on a surface, the sensor arrangement comprising:

- at least one transparent elevation (21) formed on the surface (17A), wherein the transparent elevation (21) is made of a first transparent material, and at least one first facet (21A) of the transparent elevation (21) is defining a first angle with the surface (17A);
- wherein the first angle is larger than an angle at which a total reflection occurs at an interface of the first transparent material and air and smaller than an angle at which a total reflection occurs at an interface of the first transparent material and the liquid (lnk) (see figure 5A and 5B);
- a light source (34) arranged for emitting an incident ray into a first direction such that the incident ray (A) passes through the surface (17A) into the transparent elevation (21), such that in presence of a liquid (lnk) at the first facet an incident ray will be transmitted through the first facet (21A), wherein in absence of a liquid (lnk) the incident ray will be reflected due to a total reflection at the first facets (21A and 21B);
- a light detector (38) for detecting the reflected incident ray.

**Note:** Applicant is reminded that the approximate critical angle for air/surface interface is  $42^{\circ}$ . The approximate critical angle for liquid/surface interface is equal to or greater than  $60^{\circ}$ . Further, if these conditions are not met the above reference would not

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function properly. As measured with a protractor, the first angle is 45°, thus fulfilling the requirements of the claim language.

**Regarding claim 5**, Altfather (*figures 2, 5A and 5B*) discloses a sensor arrangement for detecting a liquid on a surface, characterized in that at least one second elevation (22) having a second facet (22A) formed adjacent to a first facet (21B) of a first elevation (21) wherein the second facet (22B) defines a second angle with the surface (17A), wherein the second angle is larger than 75°, such that capillary effects are enhanced.

**Regarding claim 6**, Altfather (*figures 2, 5A and 5B*) discloses a sensor arrangement for detecting a liquid on a surface, characterized in that the second transparent material (polypropylene) has a refractive index of more than about 1.5 and the first angle is in the range of 42° to 60°.

**Regarding claim 10**, Altfather (*figures 2, 5A and 5B*) discloses a sensor arrangement for detecting a liquid on a surface, characterized in that the second elevations (22) are provided with a top facet being substantially parallel to the surface (17A).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claim 1 rejected under 35 U.S.C. 103(a) as being unpatentable over Wieser et al. (US Patent No. 5,942,976, "Wieser", hereinafter) in view of Maeda.**

**Regarding claim 1,** Wieser (*figures 1, 2A-2D and 4*) discloses a sensor arrangement for detecting a liquid on a surface, the sensor arrangement comprising:

- at least one transparent elevation (4) formed on the surface (3), wherein the transparent elevation (4) is made of a first transparent material, and at least one first facet of the transparent elevation (4) is defining a first angle with the surface (3);
- a light source (8) arranged for emitting an incident ray into a first direction such that the incident ray passes through the surface (3) into the transparent elevation (4), such that in presence of a liquid (spray adhesive) at the first facet an incident ray will be transmitted through the first facet, wherein in absence of a liquid (spray adhesive) the incident ray will be reflected due to a total reflection at the first facets (col. 4, lines 49-59);
- a light detector (9) for detecting the reflected incident ray.

Wieser fails to teach that the first angle is larger than an angle at which a total reflection occurs at an interface of the first transparent material and air and smaller than an angle at which a total reflection occurs at an interface of the first transparent material and the liquid.

Maeda (*figures 9 and 10*) discloses a sensor arrangement comprising at least one transparent elevation (180) formed on the surface (700B) wherein the first angle is larger than an angle at which a total reflection occurs at an interface of the first

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transparent material and air and smaller than an angle at which a total reflection occurs at an interface of the first transparent material and the liquid (706) (see figure 9 and 10).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the arrangement of Maeda in combination with the device of Wieser because it will provide an effective and reliable method to determine when liquid is present thus increasing the overall accuracy and capability of the device.

**Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wieser in view of Maeda, as applied to claim 1, and in further view of Tomooka (US Patent No. 6,469,625 B1).**

**Regarding claim 11**, Wieser as modified by Maeda (*Wieser: figures 1, 2A-2D and 4*) discloses a sensor arrangement for detecting a liquid on a surface, the sensor arrangement comprising a light detector (9) and a light source (8) but fails to teach a second light detector is provided for detecting a ray reflected at an object placed in front of the elevations.

Tomooka (*figures 2A and 3*) discloses a sensor arrangement comprising a second light detector (12A) is provided for detecting a ray reflected at an object (8) placed in front of the elevations (6).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the second light detector of Tomooka in combination with the arrangement of Wieser as modified by Maeda because it will provide an increase in the sensor detecting tampering means such as a liquid or an object, thus increasing the overall accuracy and reliability of the device.



**Regarding claim 12**, Wieser as modified by Maeda (*Wieser: figures 1, 2A-2D and 4*) discloses a sensor arrangement for detecting a liquid on a surface, the sensor arrangement comprising a light detector (9) and a light source (8) but fails to teach a that the light source and/or light detector comprises a waveguide.

Tomooka (*figure 3*) discloses a sensor arrangement comprising a light detector (12) comprising a waveguide (9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the waveguide of Tomooka in combination with the arrangement of Wieser as modified by Maeda because it will provide alternative configurations and also ensure that the reflected beams are being properly focused onto the detector.

### ***References Cited***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mosteller et al. (US Patent No. 7,274,032 B2) discloses a liquid detection apparatus and discusses how to determine the critical angle (i.e. angle at which total reflection occurs) for both air/surface interface and liquid/surface interface.

Tregay (US Patent No. 4,998,022) discloses a liquid detection apparatus and discusses how to determine the critical angle (i.e. angle at which total reflection occurs) for both air/surface interface and liquid/surface interface.

### ***Response to Arguments***

Applicant's arguments filed 20 November 2009 that the references fail to disclose

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an intrusion detection device has been fully considered but is not persuasive. Examiner disagrees. Applicant's amendment merely adds a label into the preamble. Applicant failed to provide any specific limitations directed towards the components of an intrusion detection device. Applicant failed to provide the necessary limitations within the body of the claim. Therefore, the rejections, as set forth above, are maintained.

Applicant's arguments filed 20 November 2009 that the references fails to teach that the first angle is larger than an angle at which total reflection occurs for air/surface interface and smaller than an angle at which total reflection occurs for liquid/surface interface has been fully considered but is not persuasive. Examiner disagrees. As noted above the critical angle (i.e. angle at which total reflection occurs) must be computed for both air/surface interface and liquid/surface interface. Once calculation is complete it can be determined that the critical angle for air/surface interface is  $42^\circ$  and the approximate critical angle for liquid/surface interface is equal to or greater than  $60^\circ$ . If these conditions are not met the device will not function properly. Therefore, the rejections as set forth above are maintained.

**Note:** Applicant is requested to further explain why the above references fail to meet Applicant's limitation.

Applicant's arguments filed 20 November 2009 that the Maeda reference fails to teach detection of the reflected incident ray. Examiner disagrees. Applicant is directed towards figure 10 of the Maeda reference. This figure clearly depicts the detection of the reflected ray. Therefore, the rejections as set forth above are maintained.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Francis M. LeGasse Jr whose telephone number is (571) 272-9798. The examiner can normally be reached on Monday through Thursday 7:00 am to 5:30 pm E.S.T.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached on (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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